

# Linking People, Processes, and Open Data Automatically to Enhance Tropical Research on Sustainability

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Collaboration is an essential ingredient in modern research efforts directed at answering complex problems such as sustainability in the tropic zone. Difficult problems relevant to the tropics include urbanisation, population growth, biodiversity pressures, public health, climate change, etc. Collaborations have the potential to bridge disciplines, and apply the rich perspectives, diversity of understanding and collective intelligence required to solve these significant sustainability issues. However, barriers exist to the discovery of rich open data sources and potential partners because data is stored in disparate data silos and content about people are only in human-readable form on the Web. The discovery and establishment of collaborations are often constrained for researchers who live in the tropics due to remote geographical locations and/or isolation from other researchers. The Tropical Data Hub (TDH) is a platform to store, aggregate, selectively process and serve significant tropical data sets. Here, semantic technologies are applied to the TDH to automate linkages between its metadata and data-sets to initiate intelligent searching and alerting. These linkages automatically reveal hidden connections between related data, people and processes. Then, cohort discovery of potential collaborative partners and the discovery of, and connection to, open data sets can better enable cross-disciplinary research on sustainability.

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## Dr. Trina Myers

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Dr Trina Myers is a Computer Scientist and Lecturer in Information Technologies at James Cook University of Australia. She holds a Master of IT, Master of Business Administration and PhD (Computer Science) from James Cook University. Her research interests focus predominately in semantic web technologies. Her dissertation articulates the Semantic Reef project, which is an eco-informatics use-case that applies semantic technologies in the marine biology domain. To assist in research on climate change and the Great Barrier Reef the project aimed to enable observational hypothesis-driven research by employing Semantic inference over disparate marine and ecological datasets. Her other research interests include visualisation technologies, distributed computing, geo-informatics and tropical environmental planning and sustainability.

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## Dr Jarrod Trevathan

*Lecturer/Researcher, School of Information and Communication Technology, Griffith University  
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Jarrold Trevathan is a lecturer/researcher for the School of Information and Communication Technology at Griffith University, Australia. His research interests include business and environmental informatics. His postdoctoral research is on the Smart Environmental Monitoring and Analysis Technologies (SEMAT) project which is a multi-disciplinary effort that revolves around constructing 'smart' sensor networks. These networks can be deployed in aquatic settings for the purpose of monitoring and studying marine environment. The system allows for real-time access to remotely sensed data and two-way communication between the observer and the sensors, as well as between the sensors themselves. Jarrod has research experience in online fraud and security issues and regularly contributes to social commentary on emerging issues that affect society through the increasing use of technology. Some of his research interests include e-Commerce security, biometric security and wireless sensor networks (security and environmental monitoring).

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## Prof. Ian Atkinson

*Director, eResearch Centre, James Cook University  
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Professor Ian Atkinson is the Director of the eResearch Centre at James Cook University. He has a background in computational chemistry that led him to the world of Supercomputing. More recently he has been engaged in e-Research and grid computing service development focused on serving the Australian research community. He has a long-standing interest in eResearch methods, tools, scientific data management and user interfaces for HPC tools. Current interests are grid mediated access to data sources, sensor technologies, visualisation methods. He has been CI on a range of high profile projects including the DEST Archer eResearch project focussing on data grids and data collection from instruments and sensors.

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